

Amended

6. (Amended) The method of manufacture for a stator for an automotive alternator according to Claim 5 further comprising a step of compression molding said bridge portions of said stator coil after said step of inserting said stator coil so that [the] inner circumferential surfaces of said bridge portions are placed in contact with [the] axial end surfaces of said stator core without any gaps in the direction of the central axis of said stator core.

REMARKS

Claims 1-15 are all the claims pending in the application. Reconsideration and allowance of all claims are respectfully requested in view of the following remarks.

Formal Matters

The Examiner did not include a Notice of Draftsperson's Patent Drawing Review (Form PTO-948), with the Office Action (Paper No. 4) dated July 15, 1999. Formal Drawings were submitted with the specification. It is, therefore, respectfully requested that the Examiner include Form PTO-948 with the next Office Action.

The Examiner objected to the Specification due to certain informalities. The informalities of the specification have been corrected as suggested by the Examiner, and the Applicant thanks the Examiner for the suggestions. Therefore, Applicant respectfully requests the Examiner withdraw the objections to the specification, based on these informalities.

Applicant thanks the Examiner for acknowledging the claim to priority and for confirming receipt of the certified copy of the priority document filed with the application.

Rejections Under 35 U.S.C. § 103

Claims 1-15 are rejected under 35 U.S.C. § 103(a) as being unpatentable over Adachi (JP 9-103052, hereafter “Adachi”) in view of Kawai (USP 5,691,590, hereafter “Kawai”). This rejection is respectfully traversed.

Applicant’s claimed invention clearly defines over Adachi in view of Kawai, because Adachi in combination with Kawai does not teach, disclose or suggest Applicant’s claimed stator for an automotive alternator and method of manufacturing thereof, which innovatively increases winding density, power generation efficiency and thermal conductivity while reducing size, weight, copper loss due to heat, produced noise and damage to the stator coil due to abrasion, shorting and thermal breakdown.

The Examiner asserts that it would have been obvious to one skilled in the art to modify the method and structure of Adachi in view of Kawai to produce Applicant’s claimed structure and method. Applicant respectfully disagrees with the Examiner’s assertion.

With respect to claim 1, the Examiner acknowledges Adachi does not disclose a stator coil wherein inner circumferential portions of the bridge portions of the stator coil winding are placed in contact with axial end surfaces of the stator core so that there are not gaps in the windings in the direction of the central axis, thus increasing the spatial ratio occupied by the bridge portions, as clearly claimed in claim 1. The Examiner asserts Kawai teaches this stator coil. Applicant respectfully disagrees.

While Kawai does disclose a smoothed winding, it does not disclose the preformed coil of claim 1. The smoothed winding of Kawai is accomplished by individually winding the coils onto the teeth; see col. 3, line 42-col. 4, line 10 of Kawai. Applicant’s claim 1 clearly claims a preformed stator coil. While individually wound coils produce a smooth winding, there is no

indication anywhere within Kawai that all gaps between the windings and the axial end surfaces of the slots are eliminated. Further, these individually wound coils dramatically decrease the efficiency of the manufacturing the stator, thus, obviating the purpose of Applicant's invention, and preforming the coil as in claim 1, and in Adachi. Thus, it is not obvious that one skilled in the art would combine Adachi and Kawai, because they teach away from one another. Further, while preformed coils and individually wound coils having no gaps therein might be argued to be known in the art, preformed coils without gaps, as claimed in claim 1 are not known. Up until Applicant's invention, preformed stator coils could not be assembled to stator cores without damage; see page 5, line 26-33 of Applicant's specification. Thus, even in one were to combine Adachi and Kawai, the combination would not achieve Applicant's invention of claim 1.

With respect to claim 2, this claim is dependent upon non-obvious claim 1 and the arguments made with respect to claim 1 continue to apply. Additionally, claim 2 clearly claims a stator core comprised of a plurality of comb-shaped strips laminated together having a band portion and a longitudinally (radially) disposed teeth which in turn are provided with grooves in the end surfaces thereof which are perpendicular to the band portion (parallel with the direction of the teeth) and recessed portions on both sides of the teeth near the ends so that circumferentially projecting portions are formed. Adachi does not teach, disclose or suggest this structure. Adachi merely discloses circumferentially projecting portions on the end of its teeth. It does not disclose grooves or recesses which form these portions. Thus, when a preformed stator coil is assembled thereto, it will be damaged, as described in Applicant's specification; see page 5, line 26-33. Kawai discloses no similar structure. Therefore, claim 2 is not rendered obvious by the Adachi-Kawai combination.

With respect to claims 3 and 4, these claims depend upon non-obvious claims 1 and 2, and the previous discussion continues to apply. Thus, claims 3 and 4 are not obvious due to their dependence on claims 1 and 2. Further, Kawai does not disclose that “a stator coil is a flat planar shape.” Applicant respectfully submits that the Examiner has misinterpreted the reference. Kawai merely discloses that its coil does not have crossed end portions (col. 3, lines 42-50). Furthermore, these coils are individually wound as previously discussed. Thus the entire stator coil cannot form a flat planar shape, because it is not preformed. While the ends of Kawai’s coil may well be flat, there is no indication that the coil as a whole forms a flat planar shape. Adachi does not disclose any similar structure either. Thus, claims 3 and 4 are not rendered obvious by the Adachi-Kawai combination.

With respect to claims 5-15, these claims are also not made obvious by Adachi in view of Kawai. As previously discussed with respect to claims 1-4, Kawai discloses a completely different method of manufacturing than does the present invention or Adachi. Further, Adachi does not disclose forming the circumferential projections on the ends of the teeth after assembling the coil and the core, as claimed in claim 5. Assembling the coil over existing projections will cause damage to the coil during assembly; see page 5, lines 26-33 of Applicant’s specification. Thus, it would not be obvious to combine Adachi and Kawai to attempt the claimed manufacturing methods of claims 5-15. Even if these references were combined, they would not accomplish the invention of claims 5-15.

Therefore, it is Applicant’s contention that it is far from obvious that the Adachi and Kawai references cited could be used to achieve the present invention. It is clear that the disclosure of Adachi and Kawai, individually or in combination, do not teach the Applicant’s claimed invention. Therefore, claims 1-15 are not rendered obvious by these references. Adachi

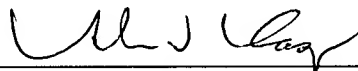
and Kawai are each individually complete and there is no motivation or suggestion to apply Kawai within Adachi's stator, or modify Adachi in view of Kawai to attempt Applicant's claimed stator. More specifically, an artisan of ordinary skill would not have (and could not have) applied the references in the manner suggested by the Examiner to produce the subject matter of the claimed invention. Since Adachi in view of Kawai neither anticipates, nor renders obvious the claimed invention, Applicant respectfully requests the Examiner to withdraw the rejection of all claims.

Conclusion

In view of the foregoing, the claims are now believed to be in form for allowance, and such action is hereby solicited. If any points remain in issue which the Examiner feels may be best resolved through a personal or telephone interview, he is kindly requested to contact the undersigned at the telephone number listed below.

Applicant hereby petitions for any extension of time which may be required to maintain the pendency of this case, and any required fee, except for the Issue Fee, for such extension is to be charged to Deposit Account No. 19-4880.

Respectfully submitted,



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Date Filed: October 8, 1999